

WHAT IS CLAIMED IS:

1. An electronic power supply for a synchronous motor with permanent-magnet rotor with at least two pairs of poles, wherein the windings of each pair of poles are supplied by a corresponding electronic circuit, one of said electronic circuits comprising a capacitor which acts as a 90° phase shifter, a static switch being also present on at least one of the two electronic circuits and being controlled by means for detecting the position of the rotor.

2. An electronic power supply for a synchronous motor with permanent-magnet rotor with at least two pairs of poles, wherein the windings of each pair of poles are supplied by a corresponding electronic circuit, one of said electronic circuits comprising a capacitor which acts as a 90° phase shifter and at least one of said electronic circuits comprising a booster coil, a static switch being also present on at least one of the two electronic circuits and being controlled by means for detecting the position of the rotor.

3. The device according to claim 1, wherein the phase shift capacitor is included in one of the two electronic circuits, while the second electronic circuit has a static switch driven by a circuit which switches on the switch according to the position of the rotor detected by a position sensor and according to instantaneous values of the power supply voltage.

4. The device according to claim 3, further comprising a delay circuit for correcting data acquired by said position sensor.

5. The device according to claim 1, wherein the static switch is driven as a function of the angular position of the rotor, of the values of the power supply voltage and of a value of a current that circulates in said switch.

6. The device according to claim 2, wherein the phase shift capacitor is included in one of the two electronic circuits, while the second electronic circuit has a static switch driven by a circuit which switches on the switch according to the position of the rotor detected by a position sensor and according to instantaneous values of the power supply voltage.

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7. The device according to claim 6, further comprising a delay circuit for correcting data acquired by said position sensor.

8. The device according to claim 2, wherein the static switch is driven as a function of the angular position of the rotor, of the values of the power supply voltage and of a value of a current that circulates in said switch.

9. The device according to claim 2, wherein in a branch that is not affected by the presence of the phase shifting capacitor, an auxiliary booster coil is provided, said coil being engaged in an initial starting step by means of a controlled static switch in order to increase static torque and is disengaged upon synchronization.

10. The device according to claim 9, wherein the booster coil is disengaged by means of a timer.

11. The device according to claim 9, wherein said booster coil is disengaged when a synchronization speed is reached.

12. The device according to claim 1, comprising a structure with a multi-pole rotor with a stator in which the number of stator pairs is twice the number of rotor pole pairs.

13. The device according to claim 2, comprising a structure with a multi-pole rotor with a stator in which the number of stator pairs is twice the number of rotor pole pairs.

14. A synchronous motor with permanent-magnet rotor having a stator with two pairs of poles, comprising an electronic power supply in which the windings of each pair of poles are supplied by a corresponding electronic circuit, one of said electronic circuits comprising a capacitor which acts as a 90° phase shifter, a static switch controlled by means for detecting the position of the rotor being further provided on at least one of the two electronic circuits.

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